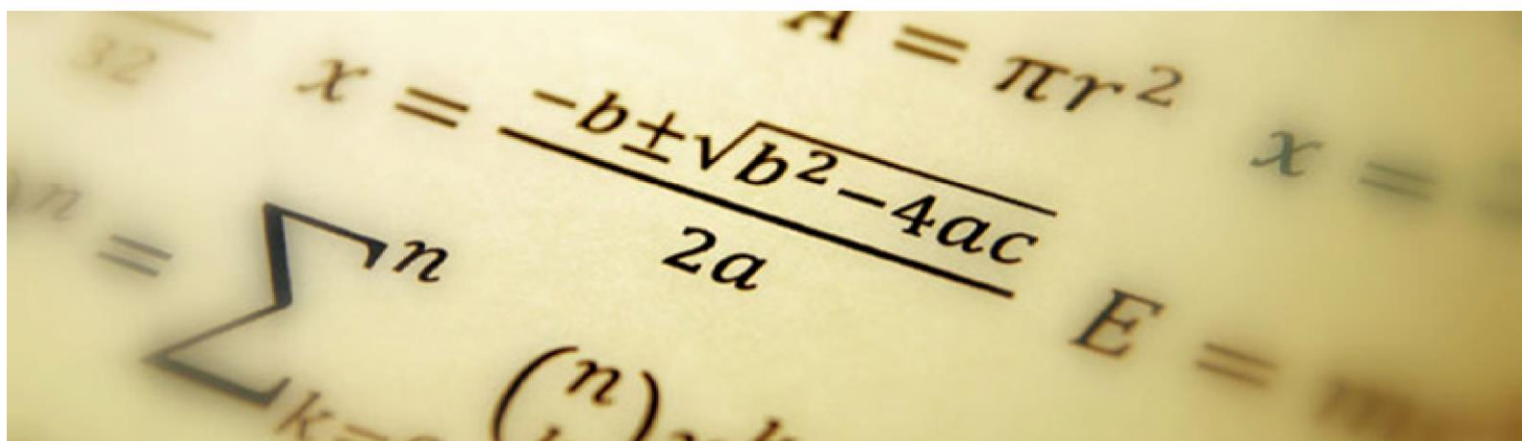




# Knowledge Organiser *Maths*

Year 11 Term 1

Additional Maths



### Additional Online Homework:

Platform	Due:

### Log-in details:



Website: <https://vle.mathswatch.co.uk/vle/>

Username: (firstname)(lastname)@dustonschool

Password: berrywood



Website: <https://www.methodmaths.com/login.html>

Centre ID: duston

Username: (firstname)(lastname)

Password: berrywood

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## Addition/Subtraction

$(+ +)$  becomes  $+$  eg.  $5 - (-3) = 5 + 3$   
 $(- -)$  becomes  $+$   
 $(+ -)$  becomes  $-$  eg.  $5 + (-3) = 5 - 3$   
 $(- +)$  becomes  $-$

Multiplication/Division

$(+) \times (+)$  becomes +  
 $(-) \times (-)$  becomes +  
 $(+) \times (-)$  becomes -  
 $(-) \times (+)$  becomes -

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Area of a triangle =  $\frac{b \times h}{2}$



Area of trapezium =  $\frac{1}{2}(a + b)h$



## Grade 3

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### The Laws of Indices

$$x^a \times x^b = x^{a+b}$$

$$x^a \div x^b = x^{a-b}$$

$$(x^a)^b = x^{ab}$$

$$x^{-a} = \frac{1}{x^a}$$

### Pythagoras

$$a^2 + b^2 = c^2$$



### Homework 1 – Non-calculator

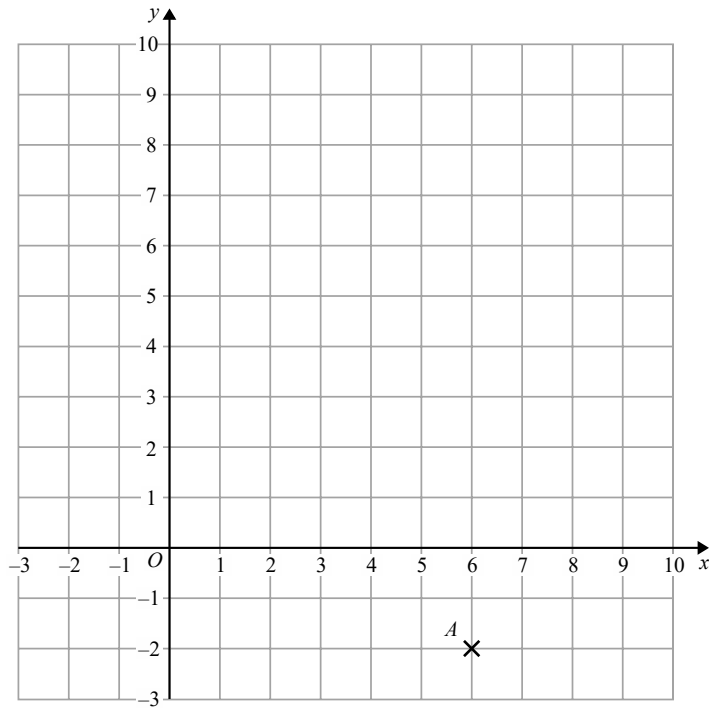
1. (a) Write the following numbers in order of size.  
Start with the smallest number.

–6          6          –5          0          12

.....

(Total for Question 1 is 1 mark)

2.

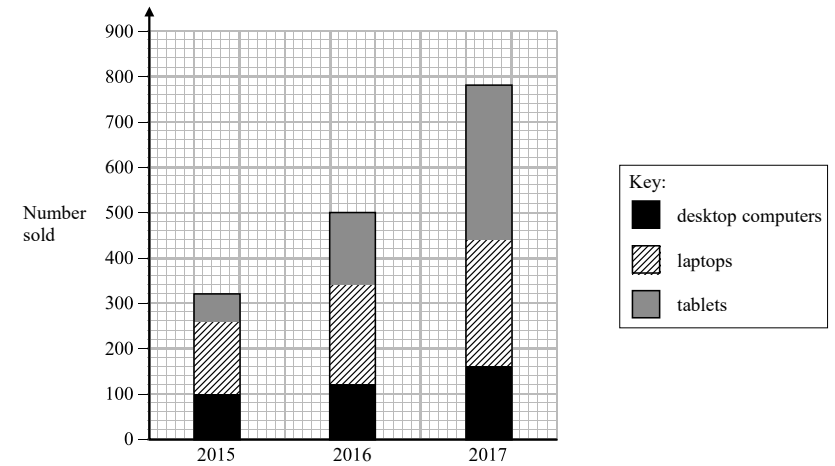


Plot the point with coordinates (2, 9).  
Label this point B.

(Total for Question 2 is 1 mark)

3. A shop sells desktop computers, laptops and tablets.

The composite bar chart shows information about sales over the last three years.



- (a) Write down the number of desktop computers sold in 2015.

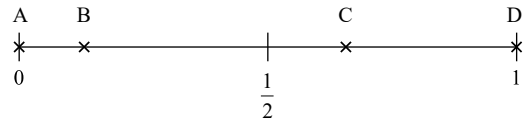
.....  
(1)

- (b) Work out the total number of laptops sold in the 3 years.

.....  
(3)

(Total for Question 3 is 4 marks)

4. Here is a probability scale.  
It shows the probability of each of the events A, B, C and D.



Write down the letter of the event that is certain.

(Total for Question 4 is 1 mark)

5. Write 6324 correct to the nearest thousand.

(Total for Question 5 is 1 mark)

6. Emma has 45 rabbits.  
30 of the rabbits are male.  
8 of the female rabbits have short hair.  
12 of the rabbits with long hair are male.

Use the information to complete the two-way table.

	Male	Female	Total
Long hair	12		
Short hair		8	
Total	30		45

(Total for Question 6 is 3 marks)

7. Here are the first four terms of a number sequence.

2                      5                      11                      23

The rule to continue this sequence is  
multiply the previous term by 2 and then add 1  
Work out the 5th term of this sequence.

(Total for Question 7 is 1 mark)

8. Simplify  $3 \times 4t$

(Total for Question 8 is 1 mark)

9. Write down the first even multiple of 7.

(Total for Question 9 is 1 mark)

10. Here are four numbers.

-9                      -2                      2                      9

Write one of these numbers in each box to make a correct calculation.

$$\boxed{\dots\dots\dots} + \boxed{\dots\dots\dots} = -7$$

(Total for Question 13 is 1 mark)

## Homework 2 – Non-calculator

1. Here is a list of four fractions.

$$\frac{4}{16} \quad \frac{2}{8} \quad \frac{15}{60} \quad \frac{3}{9}$$

One of these fractions is **not** equivalent to  $\frac{1}{4}$

Write down this fraction.

.....  
(Total for Question 10 is 1 mark)

2. There are 30 children in a nursery school.

At least 1 adult is needed for every 8 children in the nursery.

(a) Work out the least number of adults needed in the nursery.

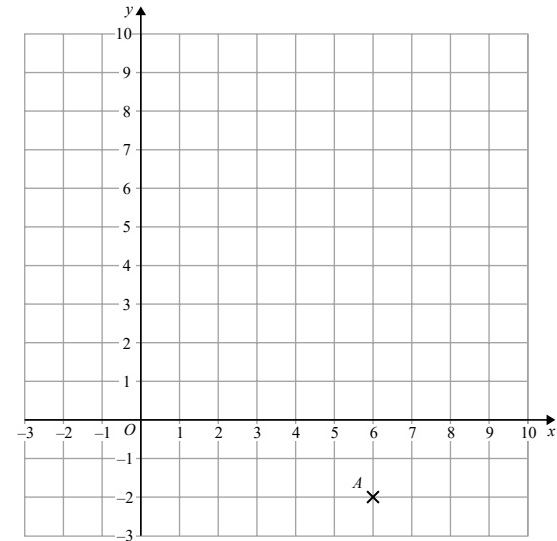
.....  
(2)

2 more children join the nursery.

(b) Does this mean that more adults are needed in the nursery?  
You must give a reason for your answer.

.....  
(1)  
(Total for Question 12 is 3 marks)

- 3.



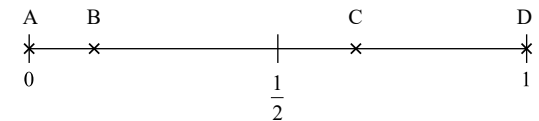
Write down the coordinates of the point A.

( ..... , ..... )  
(Total for Question 14 is 1 mark)

4. Write 20% as a fraction.

.....  
(Total for Question 15 is 1 mark)

5. Here is a probability scale.  
It shows the probability of each of the events A, B, C and D.



Write down the letter of the event that is unlikely.

.....  
(Total for Question 16 is 1 mark)

6. Simplify  $8a - 3a + 2a$

(1)

(Total for Question 17 is 1 mark)

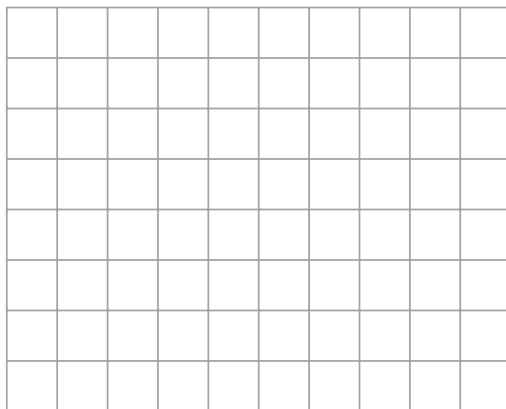
7. Write the following numbers in order of size.  
Start with the smallest number.

0.078      0.78      0.87      0.708

(Total for Question 19 is 1 mark)

8. The length of a rectangle is twice as long as the width of the rectangle.  
The area of the rectangle is  $32 \text{ cm}^2$ .

Draw the rectangle on the centimetre grid.



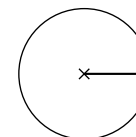
(Total for Question 20 is 2 marks)

9. 3 kg of meat costs £54.  
Nina buys 2 kg of the meat.  
Work out how much Nina pays.

£ .....

(Total for Question 21 is 2 marks)

10. The centre of this circle is marked with a cross (×).



Write down the mathematical name of the straight line shown in the circle.

(Total for Question 9 is 2 marks)

11. Work out 15% of 160 grams.

..... grams

(Total for Question 23 is 2 marks)



### Homework 3 – Non-calculator

1. Work out  $2 + 7 \times 10$

.....  
(Total for Question 24 is 1 mark)

2. Change 365 cm into metres.

..... m

(Total for Question 26 is 1 mark)

3. Harry, Regan and Kelan share £450 in the ratio 2 : 5 : 3  
How much money does Kelan get?

£.....

(Total for Question 28 is 2 marks)

4.  $P = 4x + 3y$   
 $x = 5$   
 $y = -2$   
(a) Work out the value of  $P$ .

.....  
(2)

- (b) Expand  $4e(e + 2)$

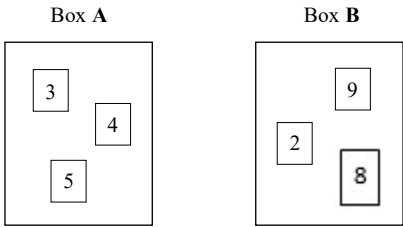
.....  
(2)

(Total for Question 31 is 4 marks)

5. Work out  $\frac{2}{5} + \frac{1}{4}$

.....  
(Total for Question 40 is 2 marks)

6. There are 3 cards in Box A and 3 cards in Box B.  
There is a number on each card.



Ryan takes at random a card from Box A and a card from Box B.  
What are all the different combinations of numbers possible?.

7. Change 2.7 kg into grams.

(Total for Question 32 is 2 marks)

..... g  
(Total for Question 34 is 1 mark)

8. Write down an example to show that the following two statement is **not** correct.  
“The factors of an even number are always even.”

(Total for Question 35 is 1 mark)

9. Write 36 as a product of its prime factors.

(Total for Question 41 is 2 marks)

10. Solve  $3(m - 4) = 21$

$m =$  .....  
(Total for Question 16 is 2 marks)